

PROJECT NUMBER: 1810
PROJECT TITLE: Project ART
PROJECT LEADER: Ravi Prasad
PERIOD COVERED: April, 1988

PROJECT ART

A. Objective: To support Commercial Plant Design and Flavor Development Objectives at the Bermuda Hundred Pilot Plant.

B. Results: Process operating parameters for nicotine extraction from DL blend, were optimized to give the target extraction level of 97% nicotine reduction with favorable subjectives. Filler AB application level of 2.5% at an extraction temperature of 140°F gave the best subjectives.

The stem absorber optimization work was initiated. Potassium citrate level on CRS stems was successfully reduced (from 17% to 12% K-citrate level) with same extraction efficiency of 97% nicotine removal.

An experimental grid to reduce the pressure drop in CO₂ extraction loop was initiated. Directionally, pressure drop can be reduced utilizing screens with greater open area.

Installation and startup of the on-line nicotine monitor was successfully completed. Initial data provided by the HPLC has been encouraging. Due to an immediate need for an "on-line" device for the commercial plant, this part of the R&D activity is being expedited.

A series of runs to document the advantages of keeping the absorber at a lower temperature than the extractor, was completed. A heat exchanger is being designed to allow "cooling" of CO₂ after the extractor to maintain the absorber at a lower temperature throughout the extraction cycle.

C. Plans: To continue support of Commercial Plant and Product Development objectives.